

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WISCONSIN**

Illinois Tool Works, Inc. and)
Miller Elec. Mfg. Co.,)
Plaintiffs,) Case No: 1:03-CV-00966
v.) Judge William Griesbach
Thermal Dynamics Corp.,) JURY TRIAL DEMANDED
Defendant.)

**SECOND AMENDED ANSWER, AFFIRMATIVE DEFENSES, AND
COUNTERCLAIMS TO PLAINTIFFS' SECOND AMENDED COMPLAINT**

Defendant Thermal Dynamics Corporation ("Thermal Dynamics") hereby answers the Second Amended Complaint (the "Complaint") of Illinois Tool Works Inc. ("ITW") and Miller Electric Manufacturing Company ("Miller") (collectively "Plaintiffs") as follows with its Second Amended Answers, Affirmative Defenses, and Counterclaims. If an averment is not specifically admitted, it is hereby denied.

1. Thermal Dynamics admits that Plaintiffs have alleged patent infringement and that Plaintiffs allege that Thermal Dynamics has infringed U.S. Patent Nos. 6,236,014 ("the '014 patent") and 6,239,407 ("the '407 patent"). Thermal Dynamics denies infringement of either patent. To the extent that any other allegations exist, they are expressly denied.
2. Paragraph 2 of the Complaint alleges a legal conclusion, thus no answer is necessary. To the extent that an answer is required, Thermal Dynamics admits only that exclusive subject matter jurisdiction for actions requiring a court to construe the patent laws, Title 35, U.S.C., reside in Federal Court. To the extent that any other allegations exist, they are expressly denied.

3. Thermal Dynamics conducts business in the Eastern District of Wisconsin.

Thermal Dynamics denies the remaining allegations of Paragraph 3 of the Complaint.

4. Paragraph 4 of the Complaint alleges a legal conclusion, thus no answer is necessary. To the extent that an answer is required, Thermal Dynamics denies that venue is proper.

5. Thermal Dynamics admits the averments of Paragraph 5.

6. Thermal Dynamics admits the averments of Paragraph 6.

7. Thermal Dynamics admits the averments of Paragraph 7.

8. Thermal Dynamics admits the averments of Paragraph 8.

9. Thermal Dynamics admits that Plaintiffs attached a copy of the '014 patent to the Complaint. Thermal Dynamics denies the remaining allegations of Paragraph 9.

10. Thermal Dynamics is without knowledge and information sufficient to form a belief as to the truth of the averments of Paragraph 10 of the Complaint and therefore denies the same.

11. Thermal Dynamics denies the allegations of Paragraph 11.

12. Thermal Dynamics denies the allegations of Paragraph 12.

13. Thermal Dynamics admits that Plaintiffs attached a copy of the '407 patent to the Complaint. Thermal Dynamics denies the remaining allegations of the Complaint.

14. Thermal Dynamics is without knowledge and information sufficient to form a belief as to the truth of the averments of Paragraph 14 of the Complaint and therefore denies the same.

15. Thermal Dynamics denies the allegations of Paragraph 15.

16. Thermal Dynamics denies the allegations of Paragraph 16.

17. Thermal Dynamics reasserts and realleges its responses to the preceding paragraphs as if fully set forth herein.

18. Thermal Dynamics denies the averments of Paragraph 18, except Thermal Dynamics admits that it makes, offers for sale, and sells the CutMaster™ 38 product.

19. Thermal Dynamics denies the averments of Paragraph 19, except Thermal Dynamics admits that it makes, offers for sale, and sells the CutMaster™ 38 product.

20. Thermal Dynamics denies the allegations of Paragraph 20.

21. Thermal Dynamics denies the allegations of Paragraph 21.

22. Thermal Dynamics denies the allegations of Paragraph 22.

23. Thermal Dynamics reasserts and re-alleges its responses to the preceding paragraphs 1-16 as if fully set forth herein.

24. Thermal Dynamics denies the averments of Paragraph 24, except Thermal Dynamics admits that it makes, offers for sale, and sells the CutMaster™ 38 product.

25. Thermal Dynamics denies the averments of Paragraph 25, except Thermal Dynamics admits that it makes, offers for sale, and sells the CutMaster™ 38 product.

26. Thermal Dynamics denies the allegations of Paragraph 26.

27. Thermal Dynamics denies the allegations of Paragraph 27.

28. Thermal Dynamics denies the allegations of Paragraph 28.

AFFIRMATIVE DEFENSES

1. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of Plaintiffs' claims are barred by the doctrine of waiver.
2. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of the claims of the '014 and '407 patents are invalid for anticipation under 35 U.S.C. § 102.
3. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of the claims of the '014 and '407 patents are invalid for obviousness under 35 U.S.C. § 103.
4. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of the claims of the '014 and '407 patents are invalid for the failure of their specifications to contain adequate written descriptions of their claimed inventions under 35 U.S.C. § 112.
5. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of the claims of the '014 and '407 patents are invalid for indefiniteness under 35 U.S.C. § 112.
6. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of the claims of the '014 and '407 patents are invalid for failure of their specifications to contain enabling disclosures of their claimed inventions.
7. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of the claims of the '014 and '407 patents are invalid for failure of their specifications to disclose the best mode for their claimed inventions.

8. Upon information and belief and after a reasonable opportunity for further investigation or discovery, and when the claims of the '014 and '407 patents are properly construed in light of the prior art, Thermal Dynamics' making and selling of the CutMaster™ 38 product does not infringe them, either directly or indirectly or contributorily, either literally or under the doctrine of equivalents.

9. Thermal Dynamics did not willingly, knowingly, or deliberately infringe the '014 and '407 patents.

10. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of Plaintiffs' claims are barred by laches.

11. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of Plaintiffs' claims are barred by estoppel.

12. Upon information and belief and after a reasonable opportunity for further investigation or discovery, all of Plaintiffs' claims are barred under the doctrine of acquiescence.

13. Upon information and belief and after a reasonable opportunity for further investigation or discovery, Plaintiffs' conduct with respect to the subject matter in its Original and First Amended Complaint constitutes patent misuse. Plaintiffs made only a general allegation of infringement and did not specify which products allegedly infringe the '014 and '407 patents in the Original and First Amended Complaint. Only one product produced by Thermal Dynamics, the CutMaster™ 38, has the circuitry necessary to even arguably infringe either the '014 or '407 patent. Thus, to the extent that Plaintiffs sought to assert these patents against other Thermal Dynamics products known not to infringe the '014 and '407 patents, Plaintiffs impermissibly broadened the scope of the patent by implicating those products in an

attempt to gain an anticompetitive advantage, thereby causing injury to Defendant Thermal Dynamics.

14. Upon information and belief and after a reasonable opportunity for further investigation or discovery, the '014 and '407 patents are invalid due to failure to name the correct inventor or inventors.

15. Upon information and belief and after a reasonable opportunity for further investigation or discovery, the '014 patent is unenforceable due to inequitable conduct. More particularly, and upon information and belief and after a reasonable opportunity for further investigation or discovery; the inventor, patent attorney, and/or assignees intentionally withheld material prior art from the patent examiner during prosecution of the application giving rise to the '014 patent. Upon information and belief, the following material prior art was withheld:

- Andreycak, Bill, "*Power Factor Correction Using the UC3852 Controlled On-Time Zero Current Switching Technique*"; Unitrode Application Note U-132 (ME 035429-035444);
- Todd, Philip C., "*UC3854 Controlled Power Factor Correction Circuit Design*"; Unitrode Application Note U-134 (ME 035463-035482);
- Zendzian, Dave, "*A High Performance Linear Regulator for Low Dropout Applications*", Unitrode Corporation U-152 (ME 035645-035653);
- Todd, Philip C., "*Boost Power Factor Corrector Design with the UC3853*"; Unitrode Corporation U-159 (ME 035777-035798);
- Panov, Y.V. et al., "*Design Issues for a Zero-Voltage-Switched Power Factor Correction Circuit and DC/DC Converter Power Processing Unit*"; Proceedings of the Virginia Power Electronics Seminar (VPEC) 1993; Blacksburg, VA, September 19-21, 1993; pages 213-224 (ME 036062-036075);

- Jiang, Y. M. et al., “*A Novel Single-Phase Power Factor Correction Scheme*”; Proceedings of the Applied Power Electronics Conference; San Diego, CA, March 7-11, 1993; pages 287-292 (ME 036150-036154); and
- Jiang, Y. et al., “*Single-Stage Single-Phase Parallel Power Factor Correction Scheme*”; Proceedings of the Power Electronics Specialist Conference, Taipei, Taiwan, June 20-25, 1994 (ME 036156-036164).

Plaintiffs produced the above prior art in response to Thermal Dynamics’ requests for production. A reasonable examiner would consider each of the above prior art references material to patentability and, in all likelihood, would have rejected one or more of the claims of the ‘014 patent had these items been properly submitted to the Patent and Trademark Office (“PTO”). On information and belief and after a reasonable opportunity for further investigation or discovery; the applicant/inventor, assignees, and/or the patent attorney prosecuting the application giving rise to the ‘014 patent intentionally withheld one or more of the above prior art references to induce the patent examiner to allow claims.

Furthermore, on information and belief and after a reasonable opportunity for further investigation or discovery, the licensee of the ‘014 patent, Miller Electric (which is also a wholly owned subsidiary of ITW, the assignee of the ‘014 patent), published an Owner’s Manual in November 1998 for a power supply known as the Spectrum 2050. The Owner’s Manual contains diagrams of the electrical circuit found in commercial products that are material to the patentability of the alleged invention of the ‘014 patent. An example of such Owner’s Manual may be found at Plaintiffs’ document production at ME 033831 – 033852. The diagram may be found at ME 033845. Upon information and belief, Miller Electric publicly distributed the Owner’s Manual with commercial products prior to the filing date of the application giving rise

to the '014. The diagrams in the Owner's Manual are material to patentability. Miller Electric, however, along with the inventor (an employee of Miller Electric), intentionally withheld the diagrams from the PTO with the intent to deceive the Patent Office.

In addition, upon information and belief and after a reasonable opportunity for further investigation and discovery; the inventor, the patent attorney prosecuting the application that matured in to the '014 patent, and/or the assignee (Miller Electric) withheld a material prior art patent reference, U.S. Patent No. 5,444,356, from the PTO. This reference was withheld with the intent to deceive the PTO.

Furthermore, upon information and belief and after a reasonable opportunity for further investigation or discovery, the inventor and/or Miller Electric withheld a material prior art reference, U.S. Patent No. 5,086,205 (assigned to PowCon) ("the '205 patent"). The '205 patent discloses and teaches the use of a 800 μ f capacitor in a boost circuit in a welding or cutting power supply. In addition, the '205 patent teaches and discloses the distinction between a utility power and a generator power source that makes increasing the size of the energy storage capacitor advantageous. This reference was withheld by the inventor and/or Miller Electric to deceive the PTO.

16. Upon information and belief and after a reasonable opportunity for further investigation or discovery, the '407 patent is unenforceable due to inequitable conduct. More particularly, and upon information and belief and after a reasonable opportunity for further investigation or discovery; the inventor, patent attorney, and/or assignee of the '407 patent intentionally withheld material prior art references from the Patent Office during the prosecution of the application giving rise to the '407 patent. Upon information and belief and after a

reasonable opportunity for further investigation or discovery, the following material prior art was withheld:

- Mr. Thommes testified that he recalled having seen an article from Unitrode employee Lloyd Dixon at some point prior to 1998. Mr. Thommes has admitted to contacting Unitrode to determine how to implement a Unitrode power factor correction chip as called for by the '407 patent. Mr. Thommes has also testified to receiving engineering application notes from Unitrode, the maker of the power factor correction chip called for in the '407 patent. The engineering notes recommend and teach how to use the chip in various circuitry. The engineering notes likely contained the article from Mr. Dixon. None of the engineering application notes nor any articles from Mr. Dixon regarding power factor correction were disclosed to the PTO.
- Panov, Y.V. et al., "*Design Issues for a Zero-Voltage-Switched Power Factor Correction Circuit and DC/DC Converter Power Processing Unit*"; Proceedings of the Virginia Power Electronics Seminar (VPEC) 1993; Blacksburg, VA, September 19-21, 1993; pages 213-224 (ME 036062-036075);
- Jiang, Y. M. et al., "*A Novel Single-Phase Power Factor Correction Scheme*"; Proceedings of the Applied Power Electronics Conference; San Diego, CA, March 7-11, 1993; pages 287-292 (ME 036150-036154);
- Jiang, Y. et al., "*Single-Stage Single-Phase Parallel Power Factor Correction Scheme*"; Proceedings of the Power Electronics Specialist Conference, Taipei, Taiwan, June 20-25, 1994 (ME 036156-036164);
- Jovanovic et al., "*Reduction of Voltage Stress in Integrated High-Quality Rectifier-Regulators by Variable-Frequency Control*", Proceedings of the Applied Power

Electronics Conference, Orlando, FL, February 13-17, 1994, pages 569-575 (ME 036142-036149);

- Upon information and belief , Miller Electric used a reference (Welding Processes and Power Sources, Edward R. Pierre, third ed., 1985 (*see, e.g.*, pp. 176-178 (describing a typical inverter welding power source) and pp. 132-137 (discussing power factor correction in welding power sources, as well as normal industry practice to do so)) for training purposes. The reference teaches power factor correction in welding power supplies. This reference directly refutes statements made by the applicant (that the applicant was first to conceive of power factor correction for a welding power supply) during prosecution of U.S. Patent No. 6,002,103 and thus is material to patentability; and
- Translations of German patents DE 4128175A1, DE 4211906A1, DE 4411227A1.

A reasonable examiner would consider each of the above prior art references material to patentability and, in all likelihood, would have rejected one or more of claims of the ‘407 patent had these items been properly submitted to the PTO. On information and belief and after a reasonable opportunity for further investigation or discovery; the applicant/inventor, assignees, and/or patent attorney intentionally withheld one or more of the above prior art references to induce the patent examiner to allow claims and the claims of the ‘103 patent.

The alleged invention of the ‘407 patent consist of the addition of an off the shelf power factor correction chip to a welding power supply. The attorney prosecuting the applications giving rise to the Thommes patents stated that “[a]pplicant’s invention includes the recognition that using the chip in the location described in the specification – connected to a boost converter in a welding power supply is inventive.” In the early 1990’s, prior to the earliest claimed priority date of the ‘407 patent, the European Union and other international regulatory bodies issued

regulations mandating power factor correction in power supplies. Such regulations are: IEC Regulations - IEC 555, 555-2, 555-3, 1000, 1000-3-2, 1000-3-3 and EU Regulations EN 60555-2, 60555-3, 61000-3-2, and 61000-3-3. These regulations provided clear motivation to install a power factor correction chip in a welding power supply. Upon information and belief and after a reasonable opportunity for further investigation or discovery; the inventor, the applicant(s) (PowCon and/or ITW) and/or patent attorney had knowledge or possession of these regulations and intentionally withheld them from the PTO.

Upon information and belief and after a reasonable opportunity for further investigation or discovery; the applicant (Miller), the assignee (ITW), and/or the patent attorney prosecuting the application giving rise to the '407 patent, knew about U.S. Patent No. 4,521,672, which is material prior art and is assigned to Miller Electric (and now property of ITW). This reference was intentionally withheld from the PTO with the intent to deceive.

In addition, and upon information and belief and after a reasonable opportunity for further investigation or discovery, the patent attorney prosecuting the application giving rise to the '407 patent, George Corrigan, was in possession or had knowledge of material prior art, now U.S. Patent No. 5,444,356, then a patent application prepared and prosecuted by George Corrigan that directly discusses power factor correction in a welding power source. This reference was intentionally withheld from the PTO with the intent to deceive.

Furthermore, upon information and belief and after an opportunity for further investigation or discovery, Mr. Corrigan and/or Miller Electric was in possession of U.S. Patent No. 5,563,777. This reference is material to patentability and was withheld from the PTO by Mr. Corrigan and/or Miller Electric with the intent to deceive.

WHEREFORE, Thermal Dynamics prays for:

- A. A judgment dismissing Plaintiffs' Complaint with prejudice;
- B. A judgment that Thermal Dynamics does not infringe the '014 and '407 patents;
- C. A judgment that the '014 and '407 patents are invalid;
- D. A judgment that the '014 and '407 patents are unenforceable;
- E. A recovery of interest and costs against Plaintiffs and other such relief as this Court deems just and proper; and
- F. A judgment that the defense of this case is exceptional, entitling Thermal Dynamics to their reasonable attorneys' fees pursuant to 35 U.S.C. §285.

COUNTERCLAIMS

Thermal Dynamics asserts the following counterclaims against Plaintiffs:

- 1. Thermal Dynamics is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 82 Benning Street, West Lebanon, New Hampshire 03784.
- 2. ITW is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 3600 West Lake Avenue, Glenview, Illinois 60025-5811.
- 3. Miller is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 1635 West Spencer Street, Appleton, Wisconsin 54912-1079.
- 4. Subject matter jurisdiction over Thermal Dynamic's counterclaims exists pursuant to 28 U.S.C. §§ 1331 (federal question), 1338(a) (patents), and 2201 (declaratory judgment).

5. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b) and (c), and 28 U.S.C. § 1400(b). Plaintiffs are subject to personal jurisdiction in this judicial district because Plaintiffs filed this action in this district.

COUNT I

The Claims Of The '014 and '407 Patents Are Invalid As Anticipated By Prior Art.

6. The claims of the '014 and '407 patents are invalid for anticipation under 35 U.S.C. § 102.

COUNT II

The Claims Of The '014 and '407 Patents Are Invalid As Obvious In View Of Prior Art.

7. The claims of the '014 and '407 patents are invalid for obviousness under 35 U.S.C. § 103.

COUNT III

The Claims of The '014 and '407 Patents Are Invalid for Inadequate Written Description

8. Upon information and belief and after an opportunity for further investigation and discovery, the '014 and '407 patents are invalid for failure of their specifications to contain an adequate written description as required by 35 U.S.C. § 112.

COUNT IV

The Claims of the '014 and '407 Patents are Invalid for Indefiniteness.

9. Upon information and belief and after an opportunity for further investigation and discovery, the claims of the '014 and '407 patents are invalid for indefiniteness under 35 U.S.C. § 112.

COUNT V

The Claims of the '014 and '407 Patents are Invalid for Lack of Enablement.

10. Upon information and belief and after an opportunity for further investigation and discovery, the claims of the '014 and '407 patents are invalid for failure of their specifications to contain an enabling disclosure of their claimed inventions.

COUNT VI

The Claims of the '014 and '407 Patents are Invalid for Failing to Disclose the Best Mode.

11. Upon information and belief and after an opportunity for further investigation and discovery, the claims of the '014 and '407 patents are invalid for failure of their specifications to disclose the best mode of their claimed inventions.

COUNT VII

The Claims of the '014 and '407 Patents are Invalid for Failing to Name the Correct Inventor.

12. Upon information and belief and after a reasonable opportunity for further investigation or discovery, the claims of the '014 and '407 patents are invalid for failing to name the correct inventors.

COUNT VIII

The '014 Patent Is Unenforceable Due to Inequitable Conduct

13. Upon information and belief and after a reasonable opportunity for further investigation or discovery, the '014 patent is unenforceable due to inequitable conduct. More particularly, and upon information and belief and after a reasonable opportunity for further investigation or discovery; the inventor, patent attorney, and/or assignees intentionally withheld material prior art from the patent examiner during prosecution of the application giving rise to the '014 patent. Upon information and belief, the following material prior art was withheld:

- Andreycak, Bill, “*Power Factor Correction Using the UC3852 Controlled On-Time Zero Current Switching Technique*”; Unitrode Application Note U-132 (ME 035429-035444);
- Todd, Philip C., “*UC3854 Controlled Power Factor Correction Circuit Design*”; Unitrode Application Note U-134 (ME 035463-035482);
- Zendzian, Dave, “*A High Performance Linear Regulator for Low Dropout Applications*”, Unitrode Corporation U-152 (ME 035645-035653);
- Todd, Philip C., “*Boost Power Factor Corrector Design with the UC3853*”; Unitrode Corporation U-159 (ME 035777-035798);
- Panov, Y.V. et al., “*Design Issues for a Zero-Voltage-Switched Power Factor Correction Circuit and DC/DC Converter Power Processing Unit*”; Proceedings of the Virginia Power Electronics Seminar (VPEC) 1993; Blacksburg, VA, September 19-21, 1993; pages 213-224 (ME 036062-036075);
- Jiang, Y. M. et al., “*A Novel Single-Phase Power Factor Correction Scheme*”; Proceedings of the Applied Power Electronics Conference; San Diego, CA, March 7-11, 1993; pages 287-292 (ME 036150-036154); and
- Jiang, Y. et al., “*Single-Stage Single-Phase Parallel Power Factor Correction Scheme*”; Proceedings of the Power Electronics Specialist Conference, Taipei, Taiwan, June 20-25, 1994 (ME 036156-036164).

Plaintiffs produced the above prior art in response to Thermal Dynamics’ requests for production. A reasonable examiner would consider each of the above prior art references material to patentability and, in all likelihood, would have rejected one or more of the claims of the ‘014 patent had these items been properly submitted to the Patent and Trademark Office (“PTO”). On information and belief and after a reasonable opportunity for further investigation

or discovery; the applicant/inventor, assignees, and/or the patent attorney prosecuting the application giving rise to the ‘014 patent intentionally withheld one or more of the above prior art references to induce the patent examiner to allow claims.

Furthermore, on information and belief and after a reasonable opportunity for further investigation or discovery, the licensee of the ‘014 patent, Miller Electric (which is also a wholly owned subsidiary of ITW, the assignee of the ‘014 patent), published an Owner’s Manual in November 1998 for a power supply known as the Spectrum 2050. The Owner’s Manual contains diagrams of the electrical circuit found in commercial products that are material to the patentability of the alleged invention of the ‘014 patent. An example of such Owner’s Manual may be found at Plaintiffs’ document production at ME 033831 – 033852. The diagram may be found at ME 033845. Upon information and belief, Miller Electric publicly distributed the Owner’s Manual with commercial products prior to the filing date of the application giving rise to the ‘014. The diagrams in the Owner’s Manual are material to patentability. Miller Electric, however, along with the inventor (an employee of Miller Electric), intentionally withheld the diagrams from the PTO with the intent to deceive the Patent Office.

In addition, upon information and belief and after a reasonable opportunity for further investigation and discovery; the inventor, the patent attorney prosecuting the application that matured in to the ‘014 patent, and/or the assignee (Miller Electric) withheld a material prior art patent reference, U.S. Patent No. 5,444,356, from the PTO. This reference was withheld with the intent to deceive the PTO.

Furthermore, upon information and belief and after a reasonable opportunity for further investigation or discovery, the inventor and/or Miller Electric withheld a material prior art reference, U.S. Patent No. 5,086,205 (assigned to PowCon) (“the ‘205 patent”). The ‘205 patent

discloses and teaches the use of a 800 μ F capacitor in a boost circuit in a welding or cutting power supply. In addition, the '205 patent teaches and discloses the distinction between a utility power and a generator power source that makes increasing the size of the energy storage capacitor advantageous. This reference was withheld by the inventor and/or Miller Electric to deceive the PTO.

COUNT IX

The '407 Patent is Unenforceable Due to Inequitable Conduct

14. Upon information and belief and after a reasonable opportunity for further investigation or discovery, the '407 patent is unenforceable due to inequitable conduct. More particularly, and upon information and belief and after a reasonable opportunity for further investigation or discovery; the inventor, patent attorney, and/or assignee of the '407 patent intentionally withheld material prior art references from the Patent Office during the prosecution of the application giving rise to the '407 patent. Upon information and belief and after a reasonable opportunity for further investigation or discovery, the following material prior art was withheld:

- Mr. Thommes testified that he recalled having seen an article from Unitrode employee Lloyd Dixon at some point prior to 1998. Mr. Thommes has admitted to contacting Unitrode to determine how to implement a Unitrode power factor correction chip as called for by the '407 patent. Mr. Thommes has also testified to receiving engineering application notes from Unitrode, the maker of the power factor correction chip called for in the '407 patent. The engineering notes recommend and teach how to use the chip in various circuitry. The engineering notes likely contained the article from Mr. Dixon.

None of the engineering application notes nor any articles from Mr. Dixon regarding power factor correction were disclosed to the PTO.

- Panov, Y.V. et al., "*Design Issues for a Zero-Voltage-Switched Power Factor Correction Circuit and DC/DC Converter Power Processing Unit*"; Proceedings of the Virginia Power Electronics Seminar (VPEC) 1993; Blacksburg, VA, September 19-21, 1993; pages 213-224 (ME 036062-036075);
- Jiang, Y. M. et al., "*A Novel Single-Phase Power Factor Correction Scheme*"; Proceedings of the Applied Power Electronics Conference; San Diego, CA, March 7-11, 1993; pages 287-292 (ME 036150-036154);
- Jiang, Y. et al., "*Single-Stage Single-Phase Parallel Power Factor Correction Scheme*"; Proceedings of the Power Electronics Specialist Conference, Taipei, Taiwan, June 20-25, 1994 (ME 036156-036164);
- Jovanovic et al., "*Reduction of Voltage Stress in Integrated High-Quality Rectifier-Regulators by Variable-Frequency Control*", Proceedings of the Applied Power Electronics Conference, Orlando, FL, February 13-17, 1994, pages 569-575 (ME 036142-036149);
- Upon information and belief , Miller Electric used a reference (Welding Processes and Power Sources, Edward R. Pierre, third ed., 1985 (*see, e.g.*, pp. 176-178 (describing a typical inverter welding power source) and pp. 132-137 (discussing power factor correction in welding power sources, as well as normal industry practice to do so)) for training purposes. The reference teaches power factor correction in welding power supplies. This reference directly refutes statements made by the applicant (that the

applicant was first to conceive of power factor correction for a welding power supply) during prosecution of U.S. Patent No. 6,002,103 and thus is material to patentability; and

- Translations of German patents DE 4128175A1, DE 4211906A1, DE 4411227A1.

A reasonable examiner would consider each of the above prior art references material to patentability and, in all likelihood, would have rejected one or more of claims of the ‘407 patent had these items been properly submitted to the PTO. On information and belief and after a reasonable opportunity for further investigation or discovery; the applicant/inventor, assignees, and/or patent attorney intentionally withheld one or more of the above prior art references to induce the patent examiner to allow claims and the claims of the ‘103 patent.

The alleged invention of the ‘407 patent consist of the addition of an off the shelf power factor correction chip to a welding power supply. The attorney prosecuting the applications giving rise to the Thommes patents stated that “[a]pplicant’s invention includes the recognition that using the chip in the location described in the specification – connected to a boost converter in a welding power supply is inventive.” In the early 1990’s, prior to the earliest claimed priority date of the ‘407 patent, the European Union and other international regulatory bodies issued regulations mandating power factor correction in power supplies. Such regulations are: IEC Regulations - IEC 555, 555-2, 555-3, 1000, 1000-3-2, 1000-3-3 and EU Regulations EN 60555-2, 60555-3, 61000-3-2, and 61000-3-3. These regulations provided clear motivation to install a power factor correction chip in a welding power supply. Upon information and belief and after a reasonable opportunity for further investigation or discovery; the inventor, the applicant(s) (PowCon and/or ITW) and/or patent attorney had knowledge or possession of these regulations and intentionally withheld them from the PTO.

Upon information and belief and after a reasonable opportunity for further investigation or discovery; the applicant (Miller), the assignee (ITW), and/or the patent attorney prosecuting the application giving rise to the '407 patent, knew about U.S. Patent No. 4,521,672, which is material prior art and is assigned to Miller Electric (and now property of ITW). This reference was intentionally withheld from the PTO with the intent to deceive.

In addition, and upon information and belief and after a reasonable opportunity for further investigation or discovery, the patent attorney prosecuting the application giving rise to the '407 patent, George Corrigan, was in possession or had knowledge of material prior art, now U.S. Patent No. 5,444,356, then a patent application prepared and prosecuted by George Corrigan that directly discusses power factor correction in a welding power source. This reference was intentionally withheld from the PTO with the intent to deceive.

Furthermore, upon information and belief and after an opportunity for further investigation or discovery, Mr. Corrigan and/or Miller Electric was in possession of U.S. Patent No. 5,563,777. This reference is material to patentability and was withheld from the PTO by Mr. Corrigan and/or Miller Electric with the intent to deceive.

WHEREFORE, Counterclaim Plaintiff Thermal Dynamics prays for:

- A. A judgment that the claims of Plaintiffs' '014 and '407 patents are invalid;
- B. A judgment that the '014 and '407 patents are unenforceable;
- C. Recovery of interest and costs against Plaintiffs and such other and further relief as this Court deems just and proper;
- D. A judgment that this case is an exceptional one, entitling Thermal Dynamics to their reasonable attorneys' fees pursuant to 35 U.S.C. § 285.

Respectfully submitted,

Dated: January 5, 2005

By: s/ Paul A. Maddock

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- and -

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Attorneys for Thermal Dynamics Corporation

CERTIFICATE OF SERVICE

I hereby certify that on January 5, 2005, the foregoing instrument was filed with the Court's ECF filing system which will send notification of such filing to the following:

Gregory B. Conway
Leibmann, Conway, Olejniczak & Jerry
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- and -

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By: s/ Jacob S. Wharton